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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,902

05/27/2005

Jean-Michel Rius

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EXAMINER

MILLER, JR, JOSEPH ALBERT

ART UNIT

PAPER NUMBER

4162

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/536,902	Applicant(s) RIUS ET AL.	
	Examiner JOSEPH MILLER JR	Art Unit 4162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 3-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>05/27/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group 1, claim(s) 1 and 2, drawn to method of using.

Group 2, claim(s) 3-7, drawn to apparatus.

The inventions listed as Groups 1 and 2 do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the special feature, the use of the TM120 coupling mode is not required by the method as it is required by the apparatus.

During a telephone conversation with Veronica Gardiner on August 11, 2008 a provisional election was made without traverse to prosecute the invention of Group 1, claims 1 and 2. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3-7 withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

The examiner has required restriction between product and process claims. Where applicant elects claims directed to the product, and the product claims are subsequently found allowable, withdrawn process claims that depend from or otherwise require all the limitations of the allowable product claim will be considered for rejoinder. All claims directed to a nonelected process invention must require all the limitations of an allowable product claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the

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requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product are found allowable, an otherwise proper restriction requirement between product claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product claim will not be rejoined. See MPEP § 821.04(b). Additionally, in order to retain the right to rejoinder in accordance with the above policy, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product claims. **Failure to do so may result in a loss of the right to rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rius (6,328,805) in view of Asmussen (5,311,103).

Rius teaches a method of depositing an internal coating (col 6, lines 29-31) on thermoplastic bottle (col 3, lines 64-66) using a plasma (abstract) with use of electromagnetic wave in the UHF range (col 2, lines 43-45) in a circular chamber (Figure 3).

Rius does not teach coating multiple substrates at one time or the use of a coupling mode to generate several electromagnetic waves within the chamber.

Asmussen teaches a method of generating a plasma for coating a number of substrates with a UHF plasma (abstract) and a TM mode of resonance (col 6, lines 54-67) with (plural) microwaves in the chamber (col 10, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method of coating multiple substrates in one chamber taught by Asmussen to the plasma deposition method of Rius because it would increase the throughput, which is a known goal in the deposition art.

Regarding the use of a chamber sized in relation to the UHF waves, Asmussen teaches modifying the TM mode and speaks of a wave coupler means - it would have been obvious to someone of ordinary skill in the plasma art to optimize the plasma to the dimensions of the chamber.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Collins (5,707,486) in view of Asmussen (5,311,103) and Rius (6,328,805).

Collins teaches a (vacuum) plasma reactor and method of deposition involving use of a UHF plasma (abstract). Collins teaches a circular vacuum chamber (Fig 2) wherein the "system construction permits scaling of its size by selecting the frequency of operation" (col 4, lines 63-64). Collins discusses the size in relation to plasma and the mode (col 3, lines 5-19) but does not teach coating of thermoplastics or multiple substrates.

Asmussen teaches a method of generating a plasma for coating a number of substrates with a UHF plasma (abstract) and a TM mode of resonance (col 6, lines 54-67) with (plural) microwaves in the chamber (col 10, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method of coating multiple substrates in one chamber taught by Asmussen to the plasma deposition method of Collins because it would increase the throughput, which is a known goal in the deposition art.

Rius teaches a method of depositing an internal coating (col 6, lines 29-31) on thermoplastic bottle (col 3, lines 64-66) using a plasma (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method of Rius of processing thermoplastic bottles to the method of Collins because modifying methods to apply coatings to various (types of) substrates is well known in the art.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn (6,152,070) in view of Asmussen (5,311,103) and Rius (6,328,805).

Fairbairn teaches a method of deposition (col 17, lines 42-45) processing multiple wafers in a chamber that contains two circular processing regions (col 12, lines 29-31). The regions may include a common RF power source to provide plasma power for deposition (col 4, lines 27-31). Fairbairn does not describe use of one shared power source as the preferred method for generating plasma.

Fairbairn teaches microwaves guided into the chamber by a wave guide (col 18, lines 40-51) but does not specifically teach matching the size of the chamber with the frequency or the use of thermoplastic containers as substrates. (Fairbairn teaches microwaves specifically in light of a cleaning operation, however, it would have been obvious to one of ordinary skill in the art to apply these to the deposition process as well as it is related to reacting the gases, which is also taught by Fairbairn in regards to deposition). (Note: microwaves are not exclusive of UHF waves).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use specifically UHF waves where microwaves are taught because UHF is encompassed in the microwave range.

Asmussen teaches a method of generating a plasma for coating a number of substrates with a UHF plasma (abstract) and a TM mode of resonance (col 6, lines 54-67) with (plural) microwaves in the chamber (col 10, lines 5-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the TM mode of resonance taught by Asmussen to the dual circular

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chambers taught by Fairbairn because perfecting of the plasma apparatus is well known in the deposition art for optimizing a process. Optimizing chamber size and shape (alluded to by Asmussen, col 6, lines 54-60) is a standard step in plasma optimization.

Fairbairn in view of Asmussen teaches the optimization of plasma by TM mode in a dual, circular chamber does not teach the processing of thermoplastics.

Rius teaches a method of depositing an internal coating (col 6, lines 29-31) on thermoplastic bottle (col 3, lines 64-66) using a plasma (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the method of Rius of processing thermoplastic bottles to the method of Fairbairn in view of Asmussen because modifying methods to apply coatings to various (types of) substrates is well known in the deposition art.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fairbairn (6,152,070) in view of (5,707,486) in view of Asmussen (5,311,103) and Rius (6,328,805) as applied to claim 1 above and in further view of Risman (5,834,744).

Fairbairn in view of Asmussen and Rius teaches the optimization of plasma by TM mode in a dual, circular chamber to deposit a coating on a face of a thermoplastic, but does not teach the use of the TM 120 mode.

Risman teaches the method of applying TM 120 in a microwave irradiation applicator (abstract). Risman teaches that the chamber is sized to preferably support TM 120 (col 2, lines 29-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the use of the TM 120 in the microwave process as taught by Risman to the microwave plasma deposition process taught by Fairbairn in view of Asmussen and Rius because the optimization of the plasma is well known in the plasma deposition art, where the target is to produce a process which has a uniform plasma in each processing area (Fairbairn lines 27-31) and optimization/use of a particular mode is one possible variable in the process/apparatus setup.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gaudreau (4,866,346) teaches a method for creating an axisymmetric plasma using wave guides where the circular microwave field is tuned to match the impedance of the load.

Behle (2006/0150909) teaches a method of using a coating apparatus by introducing electromagnetic energy into at least one coating chamber which has at least two coating places (abstract).

Feurer (4,4495,117) teaches a method of manufacturing a contact lens where tubular wave guides are used with a circular chamber using a TM mode.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSEPH MILLER JR whose telephone number is (571)270-5825. The examiner can normally be reached on Monday through Thursday from 8am to 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil, can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JOSEPH MILLER JR/

Examiner, Art Unit 4162

/Jennifer McNeil/

Supervisory Patent Examiner, Art Unit 4162